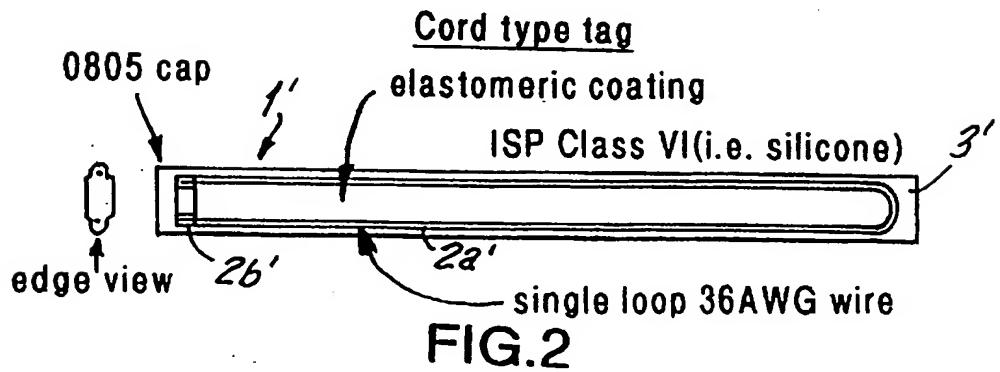
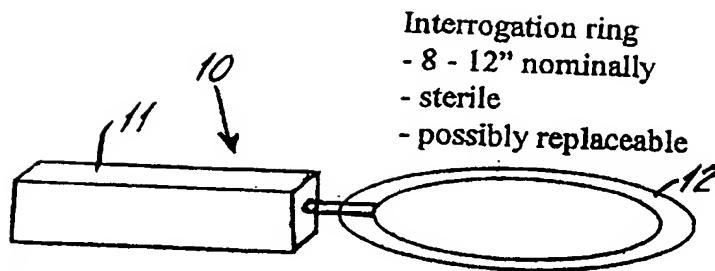


FIG.1





**Hand held detector device**  
 - electromagnetic  
 - wideband  
 - ~ 12" detection range  
 - hand held sized

Interrogation ring  
 - 8 - 12" nominally  
 - sterile  
 - possibly replaceable

FIG.3A

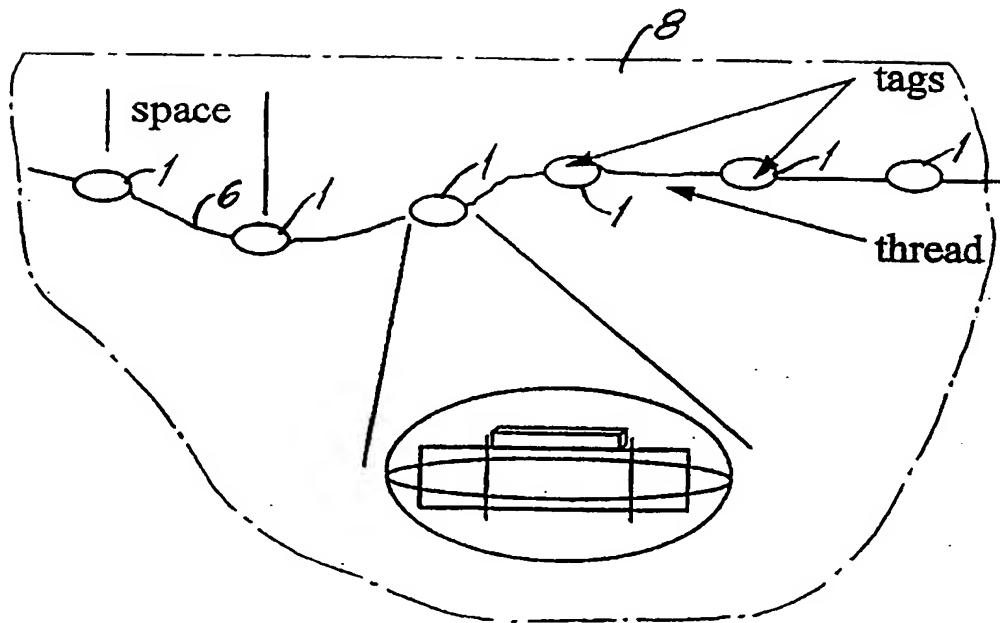


FIG.4

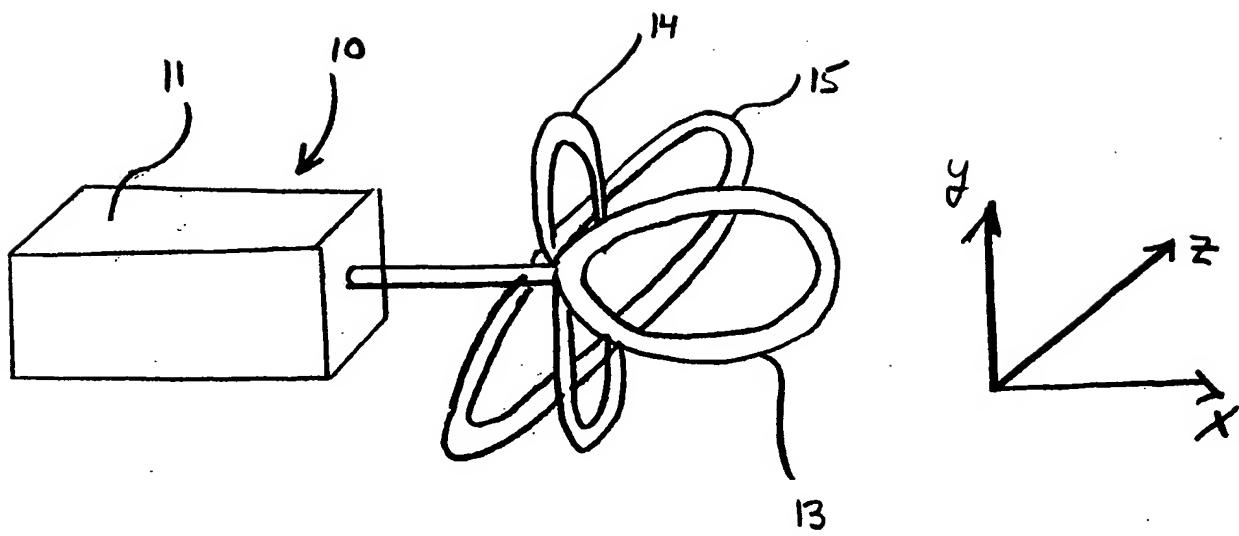
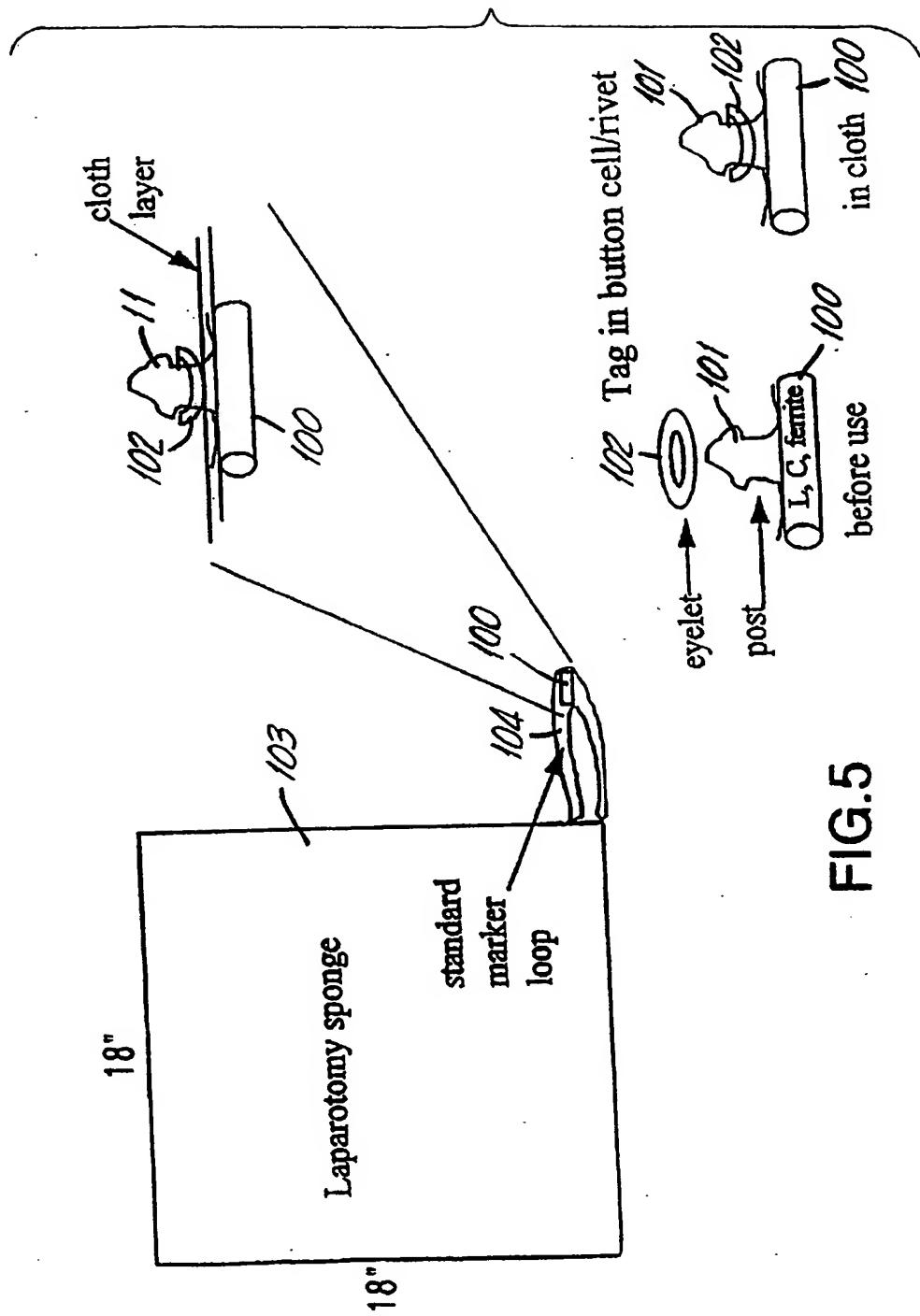


FIG 3B



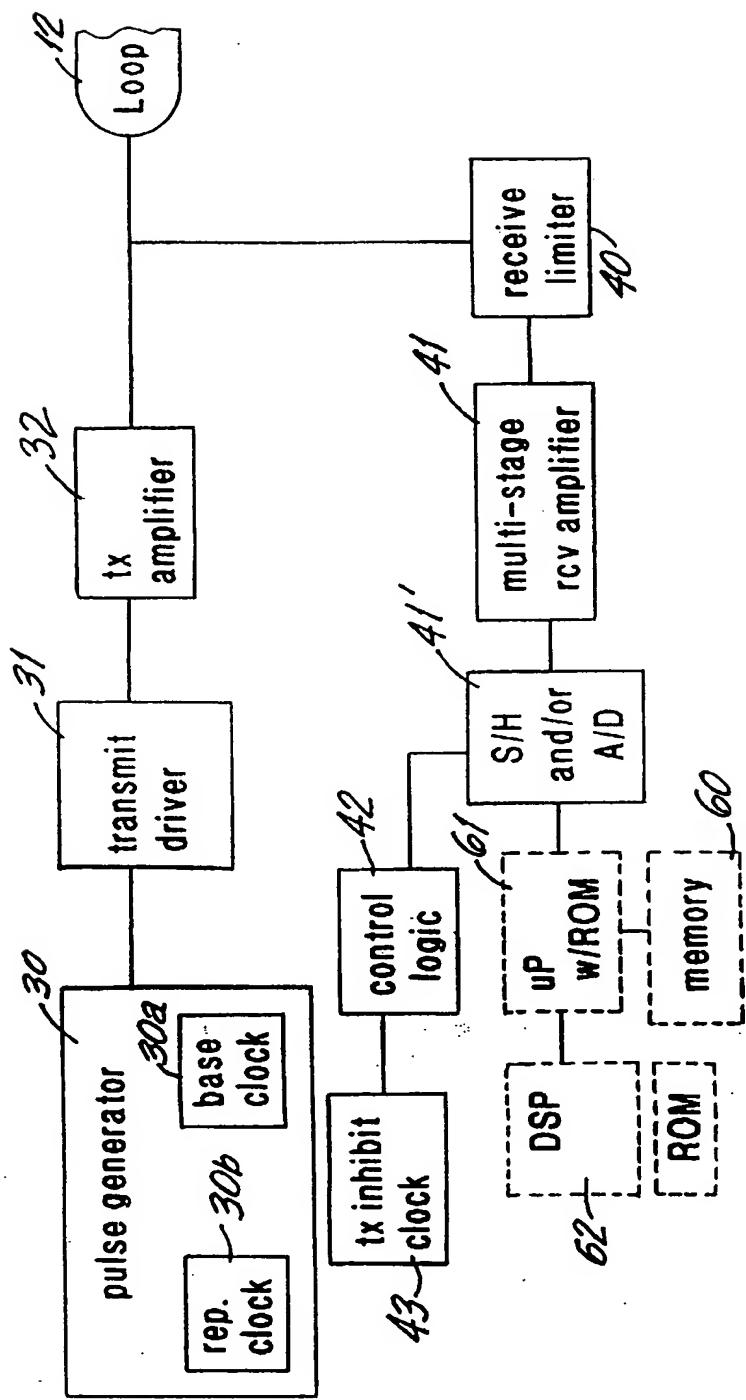


FIG.6A

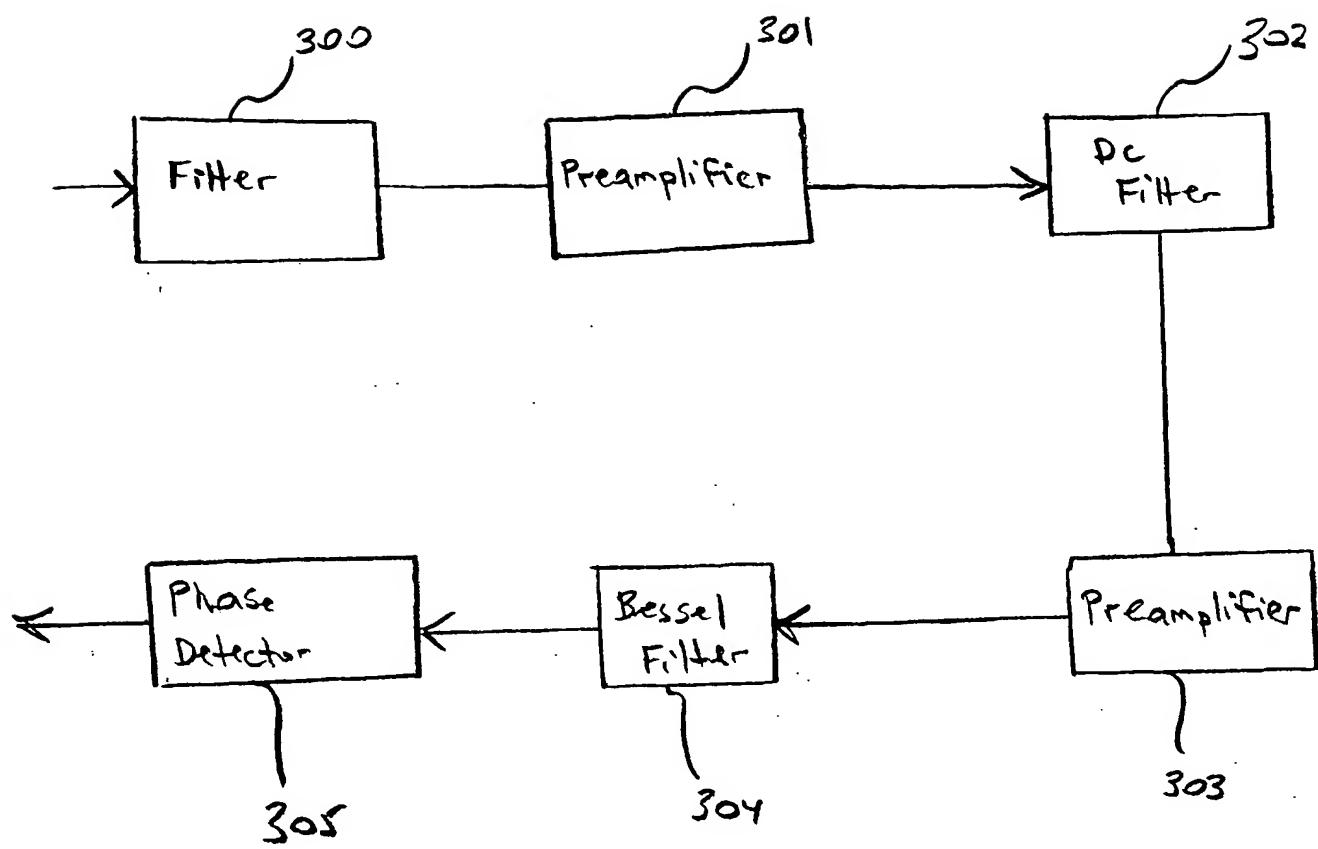


FIG. 6B

FIG. 7A

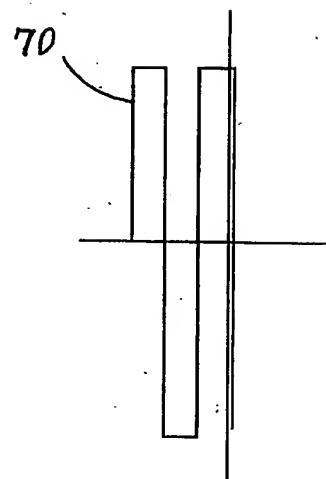
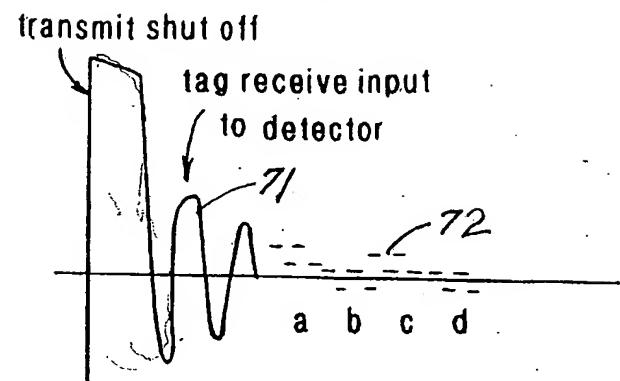


FIG. 7B



Ideal wideband  
transmit pulses

*Traditional  
sinusoidal  
transmit  
signal not  
shown*

Transmitter energy decay with  
wideband pulse excitation

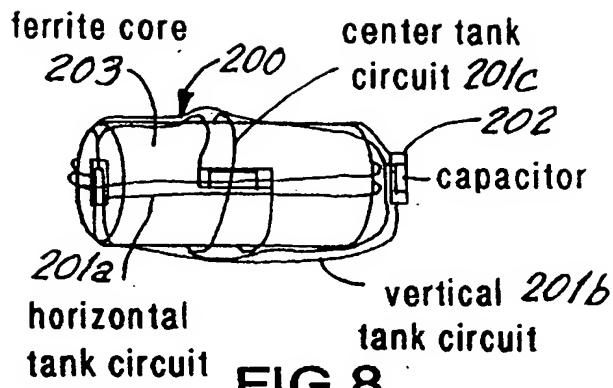
Transmitter energy decay with  
traditional narrow band sinusoidal  
excitation

Tag signal acquisition  
above noise with  
wideband energy decay

Tag signal

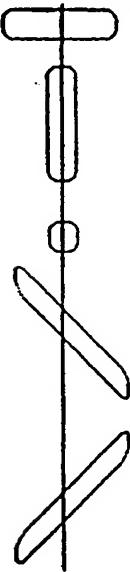
Transmitter off time

FIG. 7C

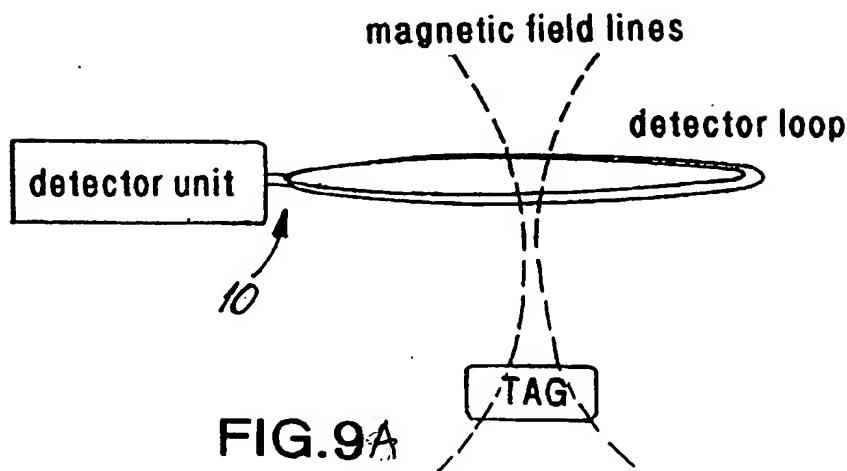


**FIG.8**

tag orientation



axis of field lines  
**FIG.9B**



**FIG.9A**